

CALLIANASSA LATISPINA (DECAPODA, THALASSINIDEA), A NEW
MUD SHRIMP FROM THE NORTHERN GULF OF MEXICO

BY

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Four species of mud shrimp have heretofore been recognized from the northern Gulf of Mexico. Schmitt (1935) described *Callianassa islagrande* and *C. jamaicensis* var. *louisianensis* from material collected at Grand Isle, Louisiana. Subsequently, Willis (1942) reported *C. major* Say from Grand Isle and Menzel (1956) listed *C. atlantica* Rathbun from Apalachee Bay, Florida. All of these burrowing species inhabit the intertidal zones of the coastal marsh or sand beaches and are seldom taken in waters deeper than two or three feet.

In the course of offshore ecological studies in the northern Gulf I have dredged a previously undescribed sublittoral species from soft mud bottoms at a depth of 7.5 fms south of Grand Isle, Louisiana. The types are preserved in the U. S. National Museum, Washington, D.C.

Callianassa latispina sp. nov.

Description of the holotype. — A male about 56 mm long from the tip of the rostrum to the end of the telson, excluding setae; carapace, including rostrum, 16.2 mm long; linea thalassinica distinct; cervical groove crossing carapace about 6.5 mm from its posterior margin. Carapace dorso-laterally rounded, median "oval area" somewhat elevated and with an indication of a low mid-dorsal carina. The short (1.3 mm) acute rostrum (fig. 1g) is triangular in dorsal aspect; in lateral view it appears slender, about four times as long as high at its base, the tip turned slightly downward. There is a slight frontal prominence, hardly spiniform, between the eyestalk and the antennal peduncle.

The eyestalks are flattened, twice as long (1.8 mm) as wide, reaching the distal third or fourth of the first antennular segment, tips rounded, inner anterior margins contiguous; cornea not elevated, consisting of one or two minute, black, non-reticulate spots, equidistant from the lateral margins of the eyestalk and about on a line with the tip of the rostrum.

The antennules are 11.5 mm long; the peduncle, 2.6 mm long, is about one third the length of the lower flagellum. The first segment, reaching somewhat beyond the eyestalk, is 1.5 mm long, almost as broad at the base, but narrowing to 0.8 mm

distally. The second segment is 1.3 mm long and 0.9 mm broad distally, whereas the third is 1.7 mm long, somewhat narrow in the middle but broadening to 0.8 mm distally. Each segment of the antennular peduncle is furnished with clusters of short setae at the distal articulation and scattered tufts of longer setae are found on the second and third segments. The upper flagellum, composed of 28 segments, is 0.9 mm longer than the lower which consists of 19 segments and is 8.0 mm long.

The antennae are 38 mm long or more than thrice the length of the antennules; the slender peduncle, 6.8 mm long, projects beyond the antennular peduncle by one sixth of the penultimate segment as well as the entire terminal segment. The scaphocerite is pointed and 0.6 mm long. The penultimate, 2.8 mm long, is 0.6 mm longer than the terminal segment.

The first abdominal segment is, dorsally, saddle-shaped, similar to that of *C. sibogae* De Man (see De Man, 1928: 124, pl. 11 fig. 17), in that it is 3.6 mm wide anteriorly, 6.8 mm posteriorly and narrowing sharply to 2.4 mm in the proximal third of its 7.1 mm length. There is a low mid-dorsal carina; the calcified lateral margins are strongly concave and bordered by a deep submarginal sulcus along the posterior two thirds of the segment. The second segment is shorter (6.1 mm) but wider (7.1 mm), whereas the third is but 4.0 mm long and broader still (8.1 mm). The fourth is the shortest segment (3.6 mm) and the width here increases to 8.7 mm; the fifth is somewhat longer (4.7 mm) and is the widest (8.9 mm) abdominal segment. The lateral margins of segments two through five are entire and either obtuse or rounded posteriorly. The sixth segment (fig. 1b) is 5.6 mm long and widest (5.9 mm) near the middle. Its dorso-antero-lateral margins are produced into characteristic sub-triangular hook-like projections which are both readily visible in dorsal aspect; beneath these the lateral margins expand posteriorly and inward, the two being united along the posterior ventral border. Segments two through five are broadly rounded dorsally, whereas the sixth is somewhat carinate. Each bears four tufts, one each anteriorly and posteriorly on each side of the midline, of moderately long setae; the sixth segment, additionally, bears two small tufts near the outer posterior angles.

The pleopods of the first abdominal segment are small, two-segmented, with the slender tip of the ultimate segment curving toward a broadly rounded, shorter, appendix interna. The exo- and endopods of the second pleopod are long and slender, about four times as long as wide. The endopod bears an appendix interna and an appendix masculina. The latter is about twice as long as broad and is both broader and slightly longer than the appendix interna. The third to fifth pleopods with long lamelliform exo- and endopods; the endopod bears a single slender appendix interna.

The spatulate telson (fig. 1b) is 7.0 mm long and 6.1 mm wide, distinctly longer than broad; the lateral and broadly rounded posterior margins are devoid of spines or spinules. The distal four fifths of the upper surface is medially depressed and so grooved, both anteriorly and laterally, as to form a shallow

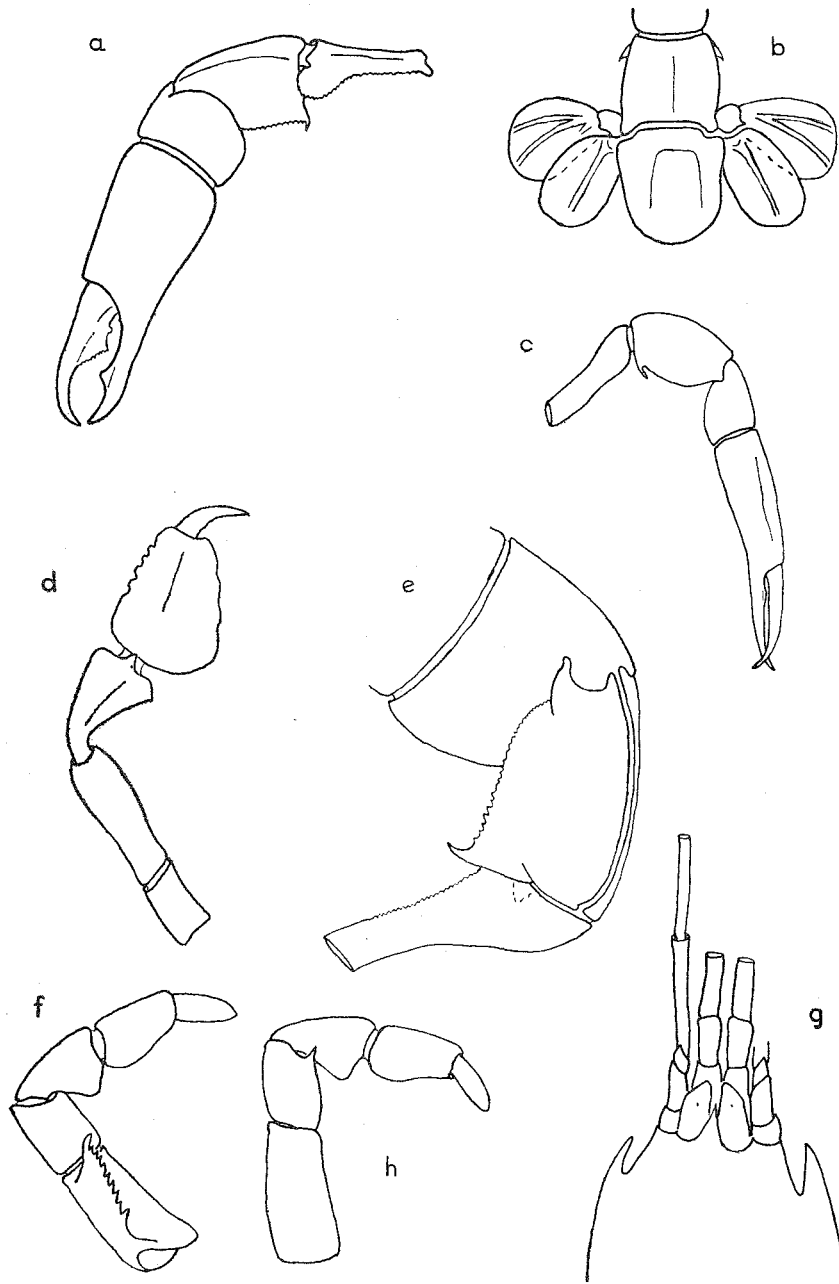


Fig. 1. *Callianassa latispina* sp. nov. a, major cheliped; b, sixth abdominal segment and caudal fan; c, minor cheliped; d, outer view of the third leg; e, inner view of the ischium, merus and carpus of the major cheliped; f, inner view of the third maxilliped; g, dorsal view of the anterior carapace and frontal appendages; h, outer view of the third maxilliped. Rough drawings with the setae omitted. Figs. d, f and h are drawn from the paratype, the remainder from the holotype.

"U" shaped sulcus; the anterior margin of this bears two tufts of setae; four tufts, arranged in linear series on either side of the midline, are located within the "U" and an additional series is positioned near each lateral margin; the posterior and lateral margins are setiferous. The uropods are short and do not extend beyond the telson when directed backward; the basal segment is anteriorly rounded and divided by a slight transverse groove into a large anterior and a smaller posterior portion; a tuft of setae is borne near the middle of the posterior margin. The inner uropod is broadly pyriform, 5.6 mm long and 4.2 mm wide, being distally rounded and broadest in the posterior third of its length. The prominent midrib bears a tuft of long setae near the posterior margin and branches strongly inward some 0.8 mm from the proximal joint. This branching ridge corresponds with a reciprocal sulcus on the ventro-lateral surface of the telson. The outer uropod is longer (6.2 mm), wider (5.5 mm) and more distinctly pyriform; the outer margin is evenly arcuate, whereas the inner is moderately concave over the proximal two thirds of its length; the distal border is broadly rounded. A stout, acute, immovable spine (0.8 mm long) is located near the middle of the proximal margin and somewhat overhangs a prominent longitudinal depression formed by two distally divergent midribs. The outer and posterior margins, together with the distal third of the inner margin of the outer uropod, are setiferous, whereas the inner uropod is fringed on the distal third of the outer as well as on the posterior and inner margins.

The ischium of the pediform third maxilliped (figs. 1h, 1f) is 3.1 mm long on the upper margin and 0.9 mm wide distally. The inner surface is armed with a prominent comb of strong sharp teeth on a well developed carina which runs from about the middle of the proximal margin, curves sharply toward the upper margin, then along the upper third of the segment toward the distal border. There are ten sub-triangular, acute teeth on the straight portion of the carina, the first and last the largest, which are followed along the proximal curve by several smaller teeth of gradually decreasing size. The merus, 2.0 mm long and 1.2 mm wide, is armed with a small acute spine at the lower distal outer angle. The pyriform carpus resembles that of *C. indica* De Man (see De Man, 1928: 160, pl. 17 fig. 26) being broad (1.5 mm) near the middle and narrowing at each end; length of the upper margin is 2.3 mm. The propodus is 1.8 mm long and tapers from a proximal width of 1.3 mm to 0.8 mm distally; the upper border being straight, whereas the lower is curved inward. The bluntly pointed dactylus is 1.6 mm long with a maximum width of 0.6 mm. The lower margin of the maxilliped is fringed with long (up to 3.5 mm) setae, as are the upper margins of the dactylus and propodus; similar setae, either singly or in tufts, are scattered elsewhere on the lateral surfaces and upper margins. There is no exopod.

The merus of the third leg (fig. 1d) is 6.8 mm long on the upper margin and broadens distally to a maximum width of 1.6 mm. The carpus is, medially, 4.0 mm long and the width broadens from 1.0 mm at the proximal joint to 2.3 mm distally; both upper and lower distal protuberances bear dense tufts of long setae on the outer surface. The propodus is 3.8 mm long on the midline and

widest (2.4 mm) proximally. The lower margin is but slightly curved, entire over the proximal third, then broadly scalloped distally so as to form five or six low protuberances which serve as bases for thick tufts of long setae; the upper margin is similarly scalloped. The proximal margin is setiferous and the outer surface carries four longitudinal rows of tufts of short setae. The dactylus is 1.9 mm long, acutely pointed, recurved and has a maximum width of 0.5 mm.

The left cheliped (fig. 1a) is much the larger, about 48 mm long. The ischium, 10.1 mm long, is narrow, 1.7 mm, proximally, broadening distally to 4.9 mm. The lower margin is feebly and irregularly serrate and beset with widely spaced, rather long, setae either singly or in tufts of two or three; the upper margin entire. The merus (figs. 1a, 1e), 11.9 mm long, is 5.1 mm wide proximally but narrows to about half of this toward the distal margin. The upper border is entire and evenly convex. The lower is produced proximally to a single strong spine, which curves slightly forward and is about 1.0 mm long, then continues with a series of about 24 low sub-triangular denticles which are gradually reduced, distally, in both size and spacing; two or three long setae are borne between each denticle. The inner distal margin is strongly concave and is produced into a strong curved hook-like protuberance at the lower angle. The carpus is short, 4.6 mm medially and 8.0 mm broad distally. The lower margin is very finely denticulate and beset with a fringe of long setae. The chela is 21.0 mm long. The palm is 12.2 mm long, widest (8.6 mm) proximally and narrowing to 6.8 mm distally. The dactylus which overlaps, inward, the fixed finger is 10.4 mm long and has a maximum width of but 2.6 mm. Its prehensile edge is distally entire but finely denticulate over the proximal 5/6 of its length. A stout, low, rounded tooth is located 1.6 mm from the proximal margin with a second, somewhat higher, at a distance of 2.6 mm; the distal margin of the latter is produced into a broadly tapering cutting edge. Except for a few low granulations near the proximal end, the prehensile margin of the fixed finger is entire throughout. There is a single, strong, broadly triangular tooth near its middle and two very small sub-conical teeth at the extreme proximal margin. The upper border of the chela is entire, whereas the lower is finely denticulate, proximally, to a point more or less below the large dactylar tooth. The lower margin of the palm and fixed finger bears numerous tufts of long setae in groups of three or four. Similar tufts but with more numerous setae are located on the dactylus, whereas the tufts are few and widely spaced on the upper margin and lateral faces of the palm.

The smaller cheliped (fig. 1c) is long, 30.7 mm, and slender. The ischium is 6.7 mm long and though only 1.7 mm wide proximally it broadens to twice this distally. The lower margin is armed with minute, widely spaced denticles and each is accompanied by a tuft of short setae. The broadly oval merus is, medially, 4.4 mm long and 3.0 mm wide. Its upper margin is entire whereas the lower is armed at the infero-proximal angle with an acute, forward pointing, hook-like spine about 0.6 mm long and distally with three or four minute, blunt denticles. A few tufts of long setae fringe the lower margin and a single tuft ornaments

the distal extremity of the upper. The carpus is short and both upper and lower margins entire. The upper marginal length is 4.4 mm, whereas medially it is but 3.1 mm; maximum width is 3.0 mm. The long (12.8 mm) slender chela is widest (2.7 mm) proximally. The palm is 7.8 mm long and slightly concave along the lower margin which, including the fixed finger, is entire and bears numerous tufts of long setae becoming more widely spaced distally. The dactylus is 5.8 mm long, its maximum width is but 0.9 mm and it is strongly hooked inward over the fixed finger. The prehensile edges of both fingers lack definite teeth or denticles. A low sharp edged ridge, approximately 0.8 mm long, is located on the proximal third of the dactylus, but elsewhere the prehensile edges show only an occasional irregular minute notch probably indicative of wear. The upper and upper-lateral margins of the dactylus bear the usual tufts of setae.

Material. — Holotype, USNM 105398, collected 30 August 1959; paratype, USNM 103755, a male, approximately 27 mm long, collected 4 February 1959. For study purposes, the paratype has been partially disarticulated.

Discussion. — All previously reported Gulf of Mexico species of *Callianassa* have, at various times, been referred to the subgenus *Callichirus* Stimpson, 1866, whereas the present form would, according to De Man's (1928) definition, be placed in the subgenus *Cheramus* Bate, 1888. Holthuis & Gottlieb (1958) questioned the value of these subgenera and showed that if they are to be recognized *Callianassa* Leach takes precedence over *Cheramus*.

Callianassa latispina is distinguished from its known Gulf of Mexico congeners by the telson being longer than broad and wholly without spines or spinules; the short, distally rounded uropods; the saddle-shaped first abdominal segment and the dorso-antero-lateral projections of the sixth abdominal segment which are apparently undescribed for other species of *Callianassa*. It would fall close to *C. batei* Borradaile and *C. minima* Rathbun in Schmitt's (1935) key to the species of the Atlantic coast of North America and would be separable from these by the unarmed telson.

Pending revision of the genus it is unwise to speculate on the taxonomic position of *C. latispina*. It is, however, morphologically similar to *C. minor* Gourret in the shape of the chelipeds, to *C. sibogae* De Man in respect to the first abdominal segment and to *C. indica* De Man in the shape of the carpus of the third maxilliped.

Remarks. — Complete color notes were not obtained from life but both major and minor chelipeds were recorded as bright crimson. The specific name refers to the broad retrorse spine-like process of the sixth abdominal segment.

ZUSAMMENFASSUNG

Eine neue *Callianassa*-Art, *C. latispina* sp. nov., wird aus dem Sublitoral des nördlichen Golfes von Mexico beschrieben und abgebildet.

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